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Central Tested Bull Selection and Management

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What is a central tested bull?

The purpose of a central bull test is to feed and manage bulls within a common environment and to measure differences in growth rates for a 140-day period. Performance testing these bulls does not improve the bulls being tested, but it aids in identifying bulls with superior growth.

Testing procedure

During the first week of November bulls were delivered to the central bull test station located at Truman, Minnesota. Each calf had a health certificate and was vaccinated for blackleg, malignant edema, leptospirosis, IBR, BVD, and PI3. All were treated for lice, ringworm, and internal parasites. After a 21-day adjustment period, the bulls were fed for 140 days and weighed every 28 days. The records collected were:

- adjusted 205 weight. This weight is calculated by taking the average daily gain of the calf \times 205 + the birth weight. In addition, the age of dam factor is added so that all weights are adjusted to a mature cow equivalent.
- 140-day average daily gain:
$$\frac{(\text{average final weight} - \text{average initial weight})}{140 \text{ days}}$$
- breed gain ratio: $\frac{(\text{individual bull A.D.G.})}{(\text{breed average A.D.G.})}$
- weight per day of age: $\frac{(\text{average final weight})}{\text{days of age}}$
- adjusted yearling:
 $(\text{test A.D.G.} \times 160 + \text{adjusted 205 day weight})$
- index: $30 \frac{(\text{individual A.D.G. on test})}{[\text{A.D.G. on test (breed average)}]} + 70 \frac{(\text{lbs/day/age})}{(\text{average lbs/day/age (breed average)})}$

Scrotal size

Scrotal circumference has been found to be favorably related to semen quality and sperm production. As the scrotal circumference increases the percent of normal sperm increases, which improves bull fertility. In addition, half sisters to the bulls with larger scrotal size reach puberty earlier. Although the heritability of most reproductive traits are low, estimates for scrotal circumference are high (.50), which means change in this trait is possible through selection.

Reproductive soundness

Through a physical evaluation of the male reproductive tract, all bulls that may have breeding problems have been eliminated. The inheritance of these traits seems to be high. Heritability estimates of prepubal adhesions and prepuce defects (.85), testicle defect (.36), vas deferens and epididymics defects (.49), and feet-leg defects (.59) are reported. Semen characteristics on a bull younger than 12-14 months of age are less reliable. The heritability of semen characteristics, such as motility (.20), percent alive (.17), normal sperm (.24), and concentration (.28) are average to low in comparison to physical defects.

Reproductive soundness selection criteria

All bulls were examined for reproductive soundness by a veterinarian. A complete physical examination of the male reproductive tract, testicular development, and feet-leg soundness was made at the end of the 140-day feeding test. All bulls with abnormalities were eliminated from the sale. All bulls were measured for testicular size and available for buyer evaluation. All bulls with underdeveloped or weak, soft testicles were culled.

Growth selection criteria

The heritability for growth traits like feedlot average daily gain (.50), 205-day weaning weight (.30), weight per day of age (.35), and adjusted yearling weight (.50) are relatively high compared to reproduction traits. When selecting for more than one trait, you will make less improvement in each additional trait selected. Therefore, the use of an index that will combine traits can be used to make maximum genetic improvement for growth rate. Only those bulls that indexed in the top two-thirds within each breed group are eligible for the performance tested bull sales.

Value of a performance tested bull

Since the sire transmits 50 percent of his genes to the makeup of the calf crop, the impact on the herd is obvious. This influence is further magnified since the last three bulls used in the herd will account for approximately 87 percent of the genetic makeup.

Buying bulls without records is like buying a used car. You buy it by sight and little is known about previous performance or use. A new paint job and a good sales pitch can mask the real thing. Having records that are collected under uniform conditions by an uninterested third party should give you *confidence in the records*.

The *bull's breeding value* is estimated by multiplying the individual's trait ratio (superiority to a group average) by the heritability of the trait. Since the heritability of the trait should be the same for all bulls fed at the station, the differences in estimated breeding values is determined by the difference in the trait ratio. For example, a bull's test average daily gain ratio may be 120. This means he is 20 percent better than the breed group in which he was evaluated.

Prewaning and yearling data have been provided on each bull. The accuracy of this information is directly related to the integrity of the breeder, the genetic merit of the breeder's herd, and pretest environmental conditions. The amount of emphasis that is placed on adjusted 205-day weight, weight per day of age, or adjusted yearling weight must be determined by each buyer.

Feeding your bull

The Minnesota Central Bull Test Station bulls have been fed a ration of corn silage, three pounds of hay, one pound of supplement, and 1 3/4 to 2 pounds of corn per 100 pounds of body weight. Therefore, continue to feed the bull all the roughage he will eat, approximately 10 pounds of grain, and free choice a combination of dicalcium phosphate and trace mineralized salt. To condition the bull prior to breeding, the bull should continue to receive adequate grain to gain approximately 1 1/2 pounds per day.

If you plan to pasture breed your yearling bull, feed him at least 10 pounds of grain per day while on pasture. Your bull can be trained to eat from a bucket, which will assure that he gets his appropriate amount of feed.

Bull management

Your bull should be transported to his new home in a clean, well-bedded truck or trailer that has a wind protection mechanism. Allow at least one month for your bull to adjust to his new surroundings, and condition him before breeding. Do not place him directly with open cows or heifers. An acre pen will give him room to exercise. If this lot is near or in sight of the female herd, it will enhance sex drive.

Approximately one month prior to breeding, expose the bull to a few cycling heifers. This will permit close observation of his mating ability. Never place the young bull in a confinement with strange, older bulls. This may cause a fight and injury to the young bull. If several young bulls have been purchased, they can be penned together. Observe the bulls periodically when they are first placed together to prevent any serious injury.

Bull-female ratio and breeding management

During a 60 to 90-day breeding season, a yearling bull can breed from 12 to 20 cows in a hand mating program. Under a pasture mating system 10 to 15 cows is a good breeding load. If management allows, rotating yearling bulls on a weekly basis will give the yearling bull adequate rest and improved herd conception rate. Feeding the bull during the week of confinement will help maintain condition and growth development. Although test station bulls have been given a complete physical, keep breeding dates and watch for repeat matings.

Post breeding management

At the end of the breeding season, remove the yearling bulls from the cow herd. Feed the bull five to six pounds of grain on good pasture. If the pasture is short, feed additional hay to meet appetite. Continue this feeding program throughout the winter period for conditioning.

Guarantee

Although minimal problems usually exist if yearling bulls are properly managed, all bulls are guaranteed breeders. Central test station bulls offered for sale have been evaluated as being reproductively sound by a veterinarian. In addition, all bulls have been measured for testicular development. The buyer is encouraged to contact the seller immediately if any breeding problems occur. In the event of nonbreeders, the *seller must be notified within six months* of sale date. If the bull is in a healthy condition and meets state health requirements, the bull may be returned to the seller at the buyer's expense. The seller has the right to test the bull for settling ability. If the bull is a nonbreeder, the seller will refund or make settlement for purchase price.

Proof of purchase

All Minnesota Beef Cattle Improvement Association (MBCIA) central tested bulls that have met test station standards will be hot branded on the right rump with a state of Minnesota brand. A bill of sale that describes the bull is part of this brochure and should be retained as proof of ownership.

Central Test Station Test Data

Bull No.	Adj. 205 Day Weight	Test A.D.G.	Breed Gain Ratio
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Bull No.	Wt/Day of Age	Adjusted Yearling Weight	Index
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Bill of Sale and Record

Minnesota Beef Cattle Improvement Association
101 Peters Hall
University of Minnesota
St. Paul, MN 55108

This is to certify that _____
owner's name

address

has this _____ of _____, 19____, sold to _____
day month year

purchaser's name

address

the following described livestock and hereby guaranteed the title thereto, viz:

No. head	Description (sex, breed, color)	Brand	Location right rump
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

I hereby covenant with the said grantee that I am the lawful owner, that I have good right to sell the same.

Buyer (signature)

Seller (signature)

MBCIA witness